

The Texas Birth Defects MONITOR

An Annual Data
and Research Update



Texas Department of State
Health Services

Volume 23

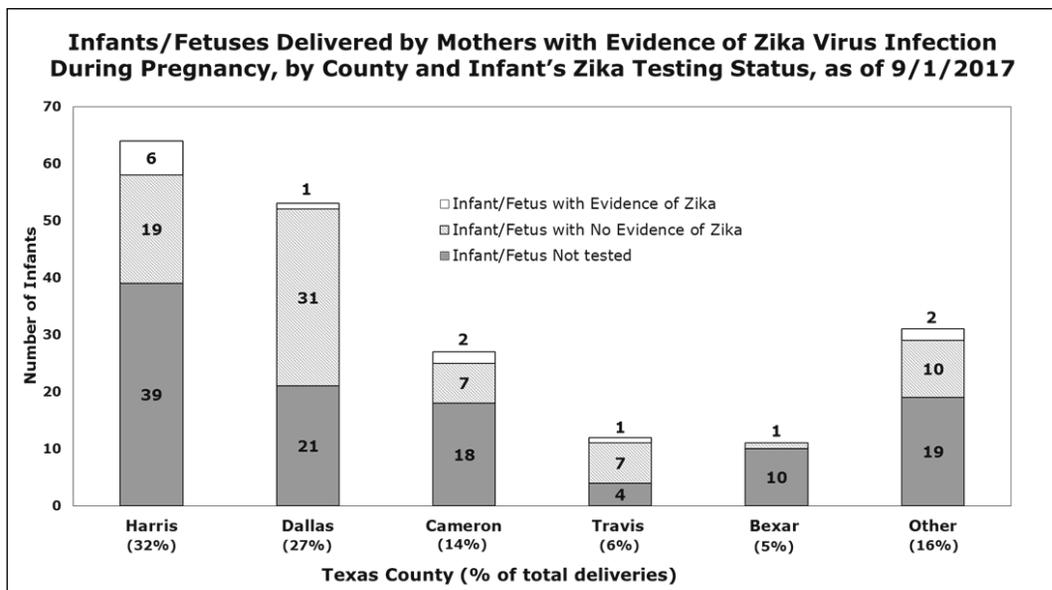
December 2017

INSIDE THIS ISSUE:

Current Status of Children Born to Mothers with Evidence of Possible Zika Virus Infection in Texas

The figure below represents the breakdown of 198 infants/fetuses delivered by mothers with laboratory evidence of Zika virus infection (1/1/16 through 9/1/17), by Texas county (map shown on page 5) and infant's testing status. These are the results from a collaborative project between the Birth Defects Epidemiology and Surveillance Branch and the Zoonosis Control Branch at the Texas Department of State Health Services. Information about pregnant women with laboratory evidence of Zika virus infection was linked to vital records to determine when and where their deliveries occurred.

(Continued on page 2)



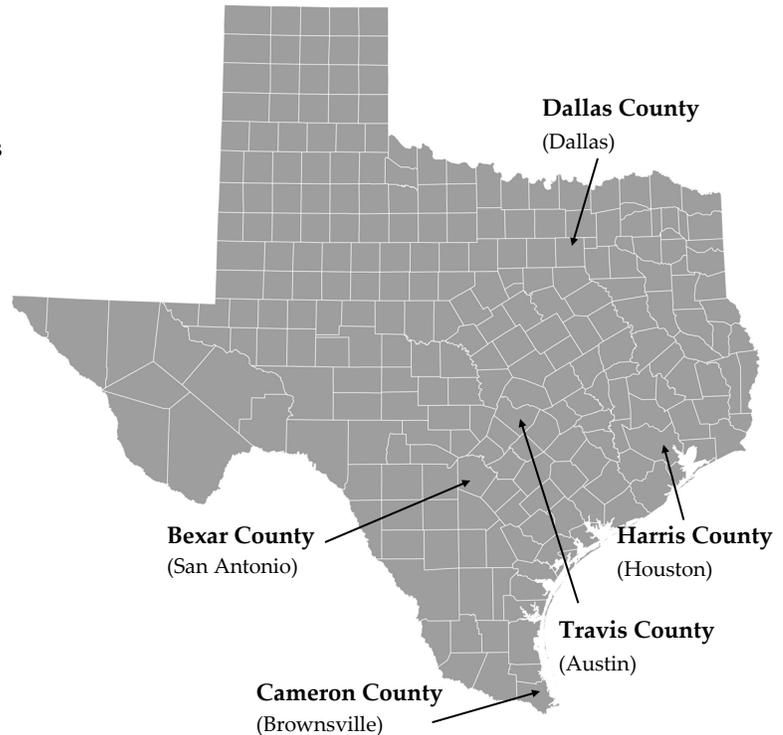
Current Status of Children Born to Mothers with Evidence of Possible Zika Virus Infection in Texas	1
Updated Texas Birth Defects Registry Data, 1999-2014	3
New FDA, EPA Guidelines for Fish Consumption	5
Prevent to Protect: Prevent Infections for Baby's Protection	6
New BDES Family Outreach Initiatives	8
44 th Annual Meeting of the International Clearinghouse for Birth Defects Surveillance and Research	10

Sign up for GovDelivery email updates from the Texas Birth Defects Epidemiology and Surveillance Branch at <https://www.dshs.texas.gov/birthdefects/>.

Birth defects staff then reviewed delivery records to determine the presence of Zika-related birth defects and Zika testing status of the delivered infant/fetus.

The mothers of all but 2 of the 198 infants were exposed to Zika virus outside of the continental U.S, mostly in Mexico, Honduras, and El Salvador.

Nearly two-thirds (59%) of these infants/fetuses were from Harris or Dallas County. Roughly 60% of all fetuses/infants were not tested, even though their mothers had laboratory results showing evidence of Zika virus infection. Approximately 8% (15/198) of the babies had Zika-associated birth defects, such as microcephaly, regardless of the baby's Zika testing status or result (similar to a 5% figure nationally*). The figure to the right shows the physical location of the Texas counties described above, with the largest city in each county in parentheses.



*Reynolds MR et al. Vital Signs: Update on Zika Virus-Associated Birth Defects and Evaluation of All U.S. Infants with Congenital Zika Virus Exposure - U.S. Zika Pregnancy Registry, 2016. MMWR Morb Mortal Wkly Rep. 2017 Apr 7;66(13):366-373.

Texas Health Data Querying System: Updated Texas Birth Defects Registry Data Available

Updated Texas Birth Defects Registry data for 1999-2014, including county-level data, are now available on the Texas Health Data website at <http://healthdata.dshs.texas.gov/Registries/BirthDefects>. For the first time, severe microcephaly (head circumference at birth <3rd percentile for gestational age and sex) is included among the birth defect categories presented.

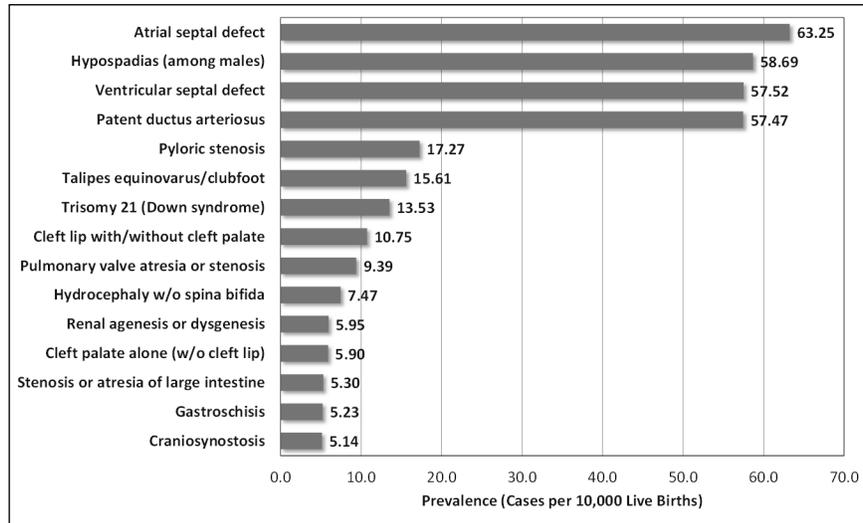
Texas Health Data allows users to generate birth defects statistics statewide, by public health region, by county, and for the area of Texas along the

border with Mexico. Using Statewide, Border, or Regional data, users can create tables of birth defects by year, maternal age group, maternal race-ethnicity, or infant sex. For County data, tables of birth defects can be produced by year and geographic area only, to protect confidentiality.

For more information about data from the Texas Birth Defect Epidemiology and Surveillance Branch, please visit our website at <https://www.dshs.texas.gov/birthdefects>.

Updated Texas Birth Defects Registry Data, 1999-2014

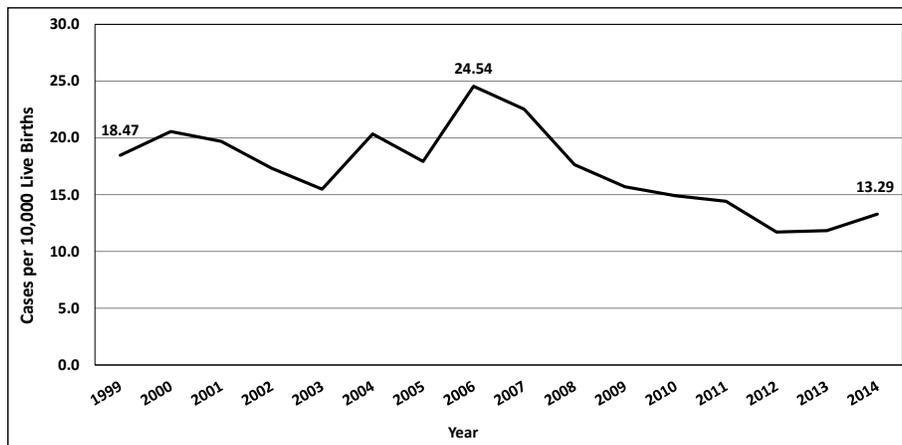
15 Most Prevalent Birth Defects, Texas, 1999-2014*



The figure above shows the 15 most common birth defects in Texas during 1999-2014*. Atrial septal defect, a heart defect, was the most common birth defect with a prevalence of about 63 cases per 10,000 live births.

*Among the birth defects that are routinely published by the Texas Birth Defects Registry.

Prevalence of Pyloric Stenosis Over Time, Texas, 1999-2014



The prevalence of pyloric stenosis (an excessive narrowing of the opening between the bottom of the stomach and the small intestine), shown in the figure above, displays a varying trend over time from 1999 to 2014. The prevalence of pyloric stenosis decreased from a peak of 24.5 cases per 10,000 live births in 2006 to 13.3 cases per 10,000 in 2014, a 46% decline.

Pyloric stenosis is the most common cause of intestinal obstruction in infancy. Infants who are exposed to certain antibiotics (e.g. azithromycin, erythromycin) have an increased risk for developing pyloric stenosis. In a large, retrospective cohort study conducted by Eberly et. al, infants less than two weeks old who were exposed to azithromycin had about an eight-fold risk of developing pyloric stenosis, and infants exposed between 15 and 42 days of life had about a three-fold risk of developing the condition (Eberly et. al 2015).

(Continued on page 4)

(Updated Texas Birth Defects Registry Data, 1999-2014, continued)

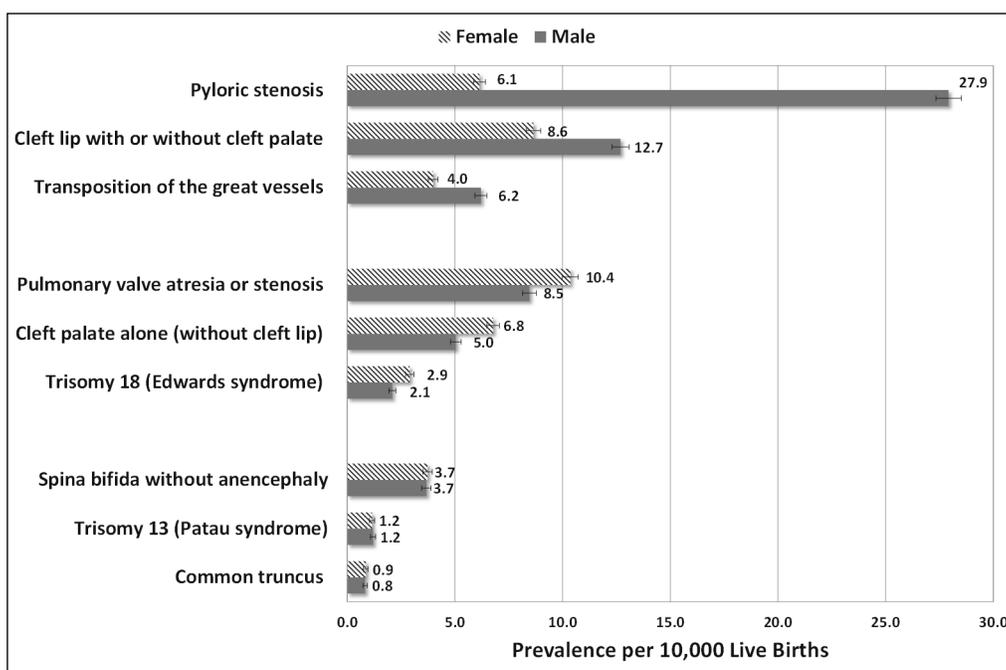
An association was also found between erythromycin and pyloric stenosis. Infants less than two weeks old exposed to erythromycin had about a thirteen-fold risk of developing the condition, and infants exposed between 15 and 42 days of life had about a four-fold risk. No association was found between prescription of azithromycin or erythromycin at 43 to 90 days of age and risk of pyloric stenosis (Eberly et. al 2015).

A higher risk of pyloric stenosis is also associated with male sex. Male infants are about four to five times more likely to have the condition than female infants. In Texas during 1999-2014, the prevalence of pyloric stenosis among males was 27.9 per 10,000 live births, while the prevalence among females was 6.1 per 10,000 live births. Many birth defects tend to occur more often in one sex than the other, such as pyloric stenosis discussed above. Of 48 specific birth defects (excluding hypospadias, a male-specific defect) that are shown in the Report of Birth Defects Among 1999-2014 Deliveries, 21 conditions are more likely to occur in males than females, 12 conditions are more likely to occur in females than males, and the prevalences of the remaining 15 birth defects are similar in both sexes. Overall, boys are about 40% more likely than girls to be born with any monitored birth defect (i.e., born having one or more structural malformations and/or chromosomal disorders).

The figure below shows three birth defects that are higher in males, three that are higher in females, and three for which prevalence is similar in both sexes. Pyloric stenosis, cleft lip with or without cleft palate, and transposition of the great vessels are three examples of birth defects that are more common in males than in females. Pulmonary valve atresia or stenosis, cleft palate alone (without cleft lip), and trisomy 18 are examples of conditions that are more prevalent in females than males. Lastly, the figure shows three defects for which prevalence in males and females is similar: spina bifida without anencephaly, trisomy 13, and common truncus.

Eberly MD, Eide MB, Thompson JL, Nylund CM. Azithromycin in Early Infancy and Pyloric Stenosis. *Pediatrics*. 2015;135(3):483-8.

Prevalence of Selected Birth Defects by Sex of Infant or Fetus, Texas, 1999-2014



FDA, EPA Release New Guidelines on Fish Consumption: What Pregnant Women and Parents Should Know

The U.S. Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) have updated their guidelines for fish and shellfish consumption. The FDA and EPA provide this information to help women who are pregnant or may become pregnant, women who are breastfeeding, and parents of young children understand the types of fish they should eat and the types of fish they should avoid.

The FDA and EPA recommend that women and young children eat fish because fish contain important nutrients that aid in growth and development during pregnancy and early childhood. However, some fish are high in mercury and methylmercury, which can be harmful to the brain and nervous system if exposed to too much of it over time. To help women and their families easily identify which fish and shellfish are safest to eat, the FDA and EPA developed new guidelines that divide commonly eaten fish into three categories: “best choices”, “good choices”, and “choices to avoid.” Women should eat two to three servings per week from the “best choices” list (fish that have the lowest mercury levels), or one serving per week from the “good choices” list. The maximum level of consumption for women, twelve ounces of fish per week, remains consistent with previous advice. The new guidelines also advise parents that children should eat one to two servings of fish per

week, starting at age 2. One serving is about four ounces of fish (measured before cooking) for adults, and about one ounce for children ages 2 to 3, two ounces for children ages 4 to 7, three ounces for children ages 8 to 10, and four ounces for children 11 years of age and older.

Commonly found choices from the “best choices” list include catfish, cod, flounder, haddock, shrimp, scallop, salmon, lobster, crab, tilapia, trout, and canned light tuna. Albacore tuna (generally known as white tuna) and yellowfin Tuna, are on the “good choices” list since these typically contain about three times more mercury than canned light tuna, and therefore these types of tuna should only be eaten about once a week. Fish with the highest mercury levels (“choices to avoid”) should be avoided completely. Bigeye tuna, for example, contains very high mercury levels and are listed under “choices to avoid.” Other fish in the “choices to avoid” category include, but are not limited to, king mackerel, marlin, shark, and swordfish. Refer to <https://www.fda.gov/fishadvice> to help choose which fish to eat and which fish you should avoid.

Before eating fish caught by friends or family, check for fish advisories, and if there is no advisory, eat only one serving and no other fish should be eaten that week. To check for fish advisories in Texas, visit <http://www.dshs.texas.gov/seafood/advisories-bans.aspx>.

For more information on these guidelines, and to download an easy to use reference chart, visit <https://www.fda.gov/fishadvice>.

Source acknowledgement: U.S. Food and Drug Administration.

January is National Birth Defects Prevention Month

Before and during pregnancy, some infections can increase the risk of birth defects and other health problems. Here are some helpful tips for pregnant women or women planning a pregnancy.

Get vaccinated.

Check with your health care provider to be sure that your flu and whooping cough vaccinations are up-to-date before getting pregnant. Your healthcare provider can also tell you about vaccinations you should receive during pregnancy.

Get the flu shot and whooping cough vaccine.

- ◆ The flu and whooping cough can cause serious illness in pregnant women and their developing babies. Getting vaccinated can help protect your child for several months after they are born. Doctors recommend getting the vaccine for whooping cough in your third trimester.
- ◆ Getting the flu isn't restricted to flu season. Stay on the safe side and get the flu shot before you become pregnant or as soon as possible after you know you are pregnant.

Become up-to-date with all vaccines before getting pregnant.

- ◆ Getting your vaccines can help prevent symptoms related to certain infections, such as fever, which can be harmful to a developing baby. Talk to your doctor to find out what vaccines they recommend you receive before getting pregnant, including the MMR vaccine. Don't forget to encourage other members of your family to get vaccinated too!

Prevent insect bites.

Pregnant women should take steps to reduce their risk of being bitten by a mosquito. Mosquitos can carry several infections, including West Nile virus, Dengue virus, malaria, and Zika virus. Zika infection during pregnancy can cause a serious birth defect called microcephaly, a sign of incomplete brain development.

What you can do to prevent insect bites:

Use Environmental Protection Agency (EPA) registered insect repellents with one of the following active ingredients: DEET, picaridin, IR3535, or oil of lemon eucalyptus (paramenthane-3,8-diol).

- ◆ Insect repellants prevent bites by making people less attractive to mosquitos and ticks. When used as directed, EPA-registered insect repellents are proven safe and effective, even for pregnant and breastfeeding women.

When mosquitos are active wear long-sleeved shirts and long pants.

- ◆ Mosquitos can carry several infections, including West Nile virus, Dengue virus, malaria, and Zika virus. Ticks can also carry many infections, such as Lyme disease. These infections can be dangerous to your unborn baby. Lyme disease that goes untreated can cause brain, nerve, spinal cord, and heart problems while Zika infection during pregnancy can cause a serious birth defect called microcephaly.
- ◆ Mosquitos are most active at dusk and dawn while ticks are active at all times of the day, typically in warmer months. Minimizing areas of exposed skin by wearing long-sleeved shirts, long pants, boots, and hats can help prevent bites.

(Prevent insect bites, continued)

Consider avoiding travel to areas with Zika virus.

- ◆ Because Zika infection during pregnancy can cause severe birth defects, pregnant women should not travel to affected areas. Partners of pregnant women and couples considering pregnancy should know the risks to pregnancy and take prevention steps. All travelers should strictly follow steps to prevent mosquito bites and prevent sexual transmission during and after the trip. When traveling to visit friends or family, think about possible health risks during your trip. If Zika is in the area you are visiting, protect yourself and loved ones from mosquito bites.

Practice good hygiene.

Wash your hands often with soap and water.

- ◆ Washing your hands is an easy step that can help prevent infections. Microbes and germs that spread illness can linger on hands after you touch something. To remove as many germs as possible rinse your hands under clean running water, lather with soap (remember to lather both the back and front!), scrub your hands together for 20 seconds, and then rinse with clean running water. Always remember to wash your hands after contact with any bodily fluids, such as saliva or urine.

Avoid putting a young child's cups or pacifiers in your mouth.

- ◆ Children's saliva or urine may contain a virus called cytomegalovirus (CMV), which women can pass to their baby during pregnancy. Becoming infected with CMV can increase your developing baby's risk for birth defects. Practicing good hygiene and avoiding bodily fluids can decrease your risk of CMV infection.

Talk to your healthcare provider.

Whether you are currently planning a pregnancy or not, talk to your healthcare provider about preconception and reproductive health care. Healthcare providers will tell you what you can do to prevent infections, like influenza, Zika and sexually transmitted diseases (referred to as STIs or STDs), before and during pregnancy.

How you can prevent infections, such as Zika virus.

- ◆ Ensure you're protecting yourself from all types of infections by talking to your health care provider. They can provide you with the important steps you need to take to prevent infections, such as Zika virus, from affecting you and your developing baby.

How to prevent sexually transmitted infections (STIs).

- ◆ Your partner may not show symptoms even when they are infected with certain viruses and STIs. Avoiding sex eliminates your risk of getting an infection, but you can also take action to protect yourself by using condoms and dental dams, which can lower your risk of infection.

Source acknowledgement: National Birth Defects Prevention Network Education and Outreach Committee.

New BDES Family Outreach Initiatives

Referral of Infants Born with Zika and Zika-related Birth Defects

In 2017, the Birth Defects Epidemiology and Surveillance (BDES) Branch partnered with Children with Special Health Care Needs (CSHCN) Systems Development Group and Texas Department of State Health Services (DSHS) Case Management to pilot a referral initiative to respond to the Zika virus epidemic. The goal of this initiative is to ensure that children with Zika-related birth defects and their families are receiving the services they need.

BDES referred two types of cases for the pilot: infants with severe microcephaly of any cause, and infants with Zika-related birth defects born to mothers with evidence of Zika virus infection during pregnancy. BDES sent case information to DSHS Case Management social workers who contacted families and completed evaluation and intake forms on affected children. Social workers also provided parents with information about Texas Parent to Parent, a parent-led support group for parents of children with special health care needs in Texas.

This pilot initiative included two groups of children. Group 1 for this pilot included 74 children born between July 1, 2016 and December 31, 2016. Group 2 included 12 additional children born between July 1, 2016 and March 31, 2017. BDES received either an intake or evaluation form for 85 of the 86 children who were referred.

In Group 1, social workers spoke with a family member for 59 of the 74 children referred (79%). Of these 59 families contacted, 31 parents/grandparents (53%) were either unaware of a severe microcephaly diagnosis or stated that their

child is not currently experiencing any health problems. In Group 2, social workers spoke with a family member for 9 of the 12 children (75%) referred. All families in the second group reported that their child is healthy or that they were unaware of a microcephaly diagnosis.

The BDES evaluation form collected information on the types of services the child and family are receiving. Services were categorized as: medical/dental, developmental, case management, family support, mental health/counseling, educational, and other. In Group 1, 56 children (95%) were receiving at least one of these services. Thirteen families were connected to additional services through this pilot in the first group of cases. In Group 2, seven children were receiving services and two families were connected to additional services.

Of the 86 children referred to DSHS Case Management in this pilot, eight children were born to mothers with evidence of Zika virus infection during pregnancy. Social workers were unable to contact four of the families, and the remaining four families stated that their child was healthy or that they were unaware of their child's diagnosis.

Next step: The Texas Birth Defects Epidemiology and Surveillance Branch will continue referring infants delivered by mothers with evidence of Zika virus infection, who also have Zika-related birth defects. However, based on the observations discussed above regarding microcephaly referral, BDES will instead refer infants with spina bifida and encephalocele to DSHS Case Management social workers.

(New BDES Family Outreach Initiatives, continued)

Neural Tube Defect Recurrence Prevention

In 2017, the Birth Defects Epidemiology and Surveillance Branch (BDES) relaunched its Neural Tube Defect (NTD) Recurrence Prevention Program. The purpose of this program is to prevent a recurrent NTD-affected pregnancy in women who have had a prior pregnancy affected by an NTD. This prevention program is designed for women who have had a pregnancy affected by spina bifida, encephalocele, or anencephaly.

In June 2017, BDES began mail-outs to women who had NTD-affected deliveries beginning in July 2016. As of November 2017, BDES completed five mailings to 146 women. The mail-outs, available in English and Spanish, include a letter from BDES, an NTD recurrence prevention card from the Centers for Disease Control and Prevention (CDC), and a flyer from the Spina Bifida Association of America. The BDES letter explains that women who have

had a previous pregnancy affected by an NTD are at an increased risk of having another pregnancy affected by an NTD. It also encourages women to talk to their health care provider about taking a higher dose of folic acid, which helps prevent NTD recurrence. The CDC NTD recurrence prevention card describes the most common types of NTDs (anencephaly, spina bifida, and encephalocele) and provides steps women can take to help reduce their risk of having another pregnancy affected by an NTD. The Spina Bifida Association of America flyer emphasizes the importance of a higher dose of folic acid for women with a previous NTD-affected pregnancy.

Next step: The Texas Birth Defects Epidemiology and Surveillance Branch plans to evaluate this initiative through maternal interviews.

These family outreach activities were supported in part by the Centers for Disease Control and Prevention (CDC) grant CDC-RFA-DD16-1601, "Birth Defects Surveillance in Texas: Methodological Enhancement and Impactful Data Utilization," and Title V, Children with Special Health Care Needs, and Texas Parent-to-Parent Family Support Group.



The International Clearinghouse for Birth Defects Surveillance and Research (ICBDSR) and participating organizations are raising awareness of birth defects with World Birth Defects Day, held on March 3. The ICBDSR hopes to increase global awareness of birth defects and promote expansion of birth defects surveillance, prevention, research, and care with this event.

To learn more, visit <http://www.icbdsr.org/>.

Did You Know?

January 1, 2018 is the 20th anniversary of the initiative to fortify the grain supply of the United States with folic acid, to prevent neural tube defects.

44th Annual Meeting of the International Clearinghouse for Birth Defects Surveillance and Research

The 44th Annual Meeting of the International Clearinghouse for Birth Defects Surveillance and Research was held November 13-15, 2017 in Austin, Texas. The Texas Birth Defects Epidemiology and Surveillance Branch at the Texas Department of State Health Services co-sponsored the event. The mission of the International Clearinghouse for Birth Defects Surveillance and Research is “to bring together birth defect programmes from around the world with the aim of conducting worldwide surveillance and research to prevent birth defects and to ameliorate their consequences.”

The opening session included a welcome speech from Dr. John Hellerstedt, MD, Commissioner for the Texas Department of State Health Services, and

from Dr. Mark Canfield, Manager of the Birth Defects Epidemiology and Surveillance Branch at DSHS. The meeting also included sessions on birth defect surveillance and evaluation, prevalence, and risk factors, and a session on congenital heart defects. The highlight of the meeting was a special scientific session on Zika virus which included presentations on clinical presentation in the newborn period and clinical findings after the newborn period, the history of Zika, the current status of Zika, the Zika virus vaccine, and a session on opportunities and challenges of Zika surveillance in Texas.

Many thanks to the invited speakers, the oral and poster presenters, and all the participants.

Recent Publications from BDES Branch Staff and Collaborators

Agopian AJ, Kim J, Langlois PH, Lee L, Whitehead LW, Symanski E, Herdt ML, Delclos GL. Maternal occupational physical activity and risk for orofacial clefts. *American Journal of Industrial Medicine*. 2017. doi: 10.1002/ajim.22731.

Carozza SE, Bae H, Meath T, Branscum A, Bovbjerg ML, Langlois PH. Evaluation of maternal health and labor and delivery conditions as risk factors for childhood leukemias in children with Down syndrome. *Cancer Epidemiology*. 2017; 46:36-41.

Cragan JD, Isenburg JL, Parker SE, Alverson CJ, Meyer RE, Stallings EB, Kirby RS, Lupo PJ, Liu JS, Seagroves A, Ethen MK, Cho SJ, Evans M, Liberman RF, Fornoff J, Browne ML, Rutkowski RE, Nance AE, Anderka M, Fox DJ, Steele A, Copeland G, Romitti PA, Mai CT, National Birth Defects Prevention Network. Population-based microcephaly surveillance in the United States 2009 to 2013: An analysis of potential sources of

variation. *Birth Defects Res A Clin Mol Teratol*. 2016; 106(11): 972-982.

Hall NB, Broussard K, Evert N, Canfield M. Notes from the Field: Zika Virus-Associated Neonatal Birth Defects Surveillance—Texas, January 2016–July 2017. *MMWR. Morbidity and mortality weekly report*. 2017; 66: 835-836.

Hoang TT, Marengo LK, Mitchell LE, Canfield MA, Agopian AJ. Original Findings and Updated Meta-Analysis for the Association Between Maternal Diabetes and Risk for Congenital Heart Disease Phenotypes. *American Journal of Epidemiology*. 2017; 13:1-1.

(Continued on page 11)

(Recent publications, continued)

- Hoyt AT, Canfield MA, Romitti PA, Botto LD, Anderka MT, Krikov SV, Tarpey MK, Feldkamp ML. Associations between Maternal Periconceptional Exposure to Secondhand Tobacco Smoke and Major Birth Defects. *Am J Obstet Gynecol.* 2016; 215:613e1-11.
- Kim J, Langlois PH, Mitchell LE, Agopian AJ. Maternal occupation and the risk of neural tube defects in offspring. *Archives of Environmental & Occupational Health.* 2017; 1-9.
- Kim J, Swartz MD, Langlois PH, Romitti PA, Weyer P5 Mitchell LE, Luben TJ, Ramakrishnan A, Malik S, Lupo PJ, Feldkamp ML, Meyer RE, Winston JJ, Reefhuis J, Blossom SJ, Bell E, Agopian AJ. Estimated maternal pesticide exposure from drinking water and heart defects in offspring. *Int J Environ Res Public Health.* 2017; 14(8).
- Lara DA, Ethen MK, Canfield MA, Nembhard WN, Morris SA. A population-based analysis of mortality in patients with Turner syndrome and hypoplastic left heart syndrome using the Texas Birth Defects Registry. *Congenit Heart Dis.* 2017; 12(1):105-112.
- Lee LJ, Symanski E, Lupo PJ, Tinker SC, Razzaghi H, Chan W, Hoyt AT, Canfield MA. Role of maternal occupational physical activity and psychosocial stressors on adverse birth outcomes. *Occup Environ Med.* 2017; 74(3):192-199.
- Soim A, Lin S, Sheridan SC, Hwang SA, Hsu WH, Luben TJ, Shaw GM, Feldkamp ML, Romitti PA, Reefhuis J, Langlois PH. Population-based case-control study of the association between weather-related extreme heat events and neural tube defects. *Birth Defects Res.* 2017;109(18):1482-1493.
- St Louis AM, Kim K, Browne ML, Liu G, Liberman RF, Nembhard WN, Canfield MA, Copeland G, Fornoff J, Kirby RS. Prevalence trends of selected major birth defects: A multi-state population-based retrospective study, United States, 1999 to 2007. *Birth Defects Research.* 2017. doi: 10.1002/bdr2.1113.
- Stingone JA, Luben TJ, Carmichael SL, Aylsworth AS, Botto LD, Correa A, Gilboa SM, Langlois PH, Nembhard WN, Richmond-Bryant J, Shaw GM. Maternal Exposure to Nitrogen Dioxide, Intake of Methyl Nutrients, and Congenital Heart Defects in Offspring. *Am J Epi.* 2017; 186(6):719-29.
- Vuong AM, Shinde MU, Brender JD, Shipp EM, Huber Jr. JC, Sharkey JR, McDonald TJ, Werler MM, Kelley KE, Griesenbeck JS, Langlois PH, Canfield MA, National Birth Defects Prevention Study Investigators. Prenatal Exposure to Nitrosatable Drugs, Dietary Intake of Nitrites, and Preterm Birth. *Am J Epi.* 2016; doi:10.1093/aje/kwv250.
- Waller DK, Hashmi SS, Hoyt AT, Duoung HT, Tinker SC, Gallaway MS, Olney RS, Finnell RH, Hecht JT, Canfield MA, National Birth Defects Prevention Study. Maternal report of fever from cold or flu during early pregnancy and the risk for non-cardiac birth defects, National Birth Defects Prevention Study, 1997-2011. *Birth Defects Res.* 2017; 00:1-10.
- Zhou Y, Gilboa SM, Herdt ML, Lupo PJ, Flanders WD, Liu Y, Shin M, Canfield MA, Kirby RS. Maternal exposure to ozone and PM2.5 and the prevalence of orofacial clefts in four U.S. states. *Environ Res.* 2017; 153:35-40.

Birth Defects Epidemiology and Surveillance Branch
MC 1964
Texas Department of State Health Services
PO Box 149347
Austin, Texas 78714-9347
<https://www.dshs.texas.gov/birthdefects/>

| 2018 Calendar

The Monitor is published annually by the Birth Defects Epidemiology and Surveillance Branch, Texas Department of State Health Services.

Editor: Morgan Tarpey, M.P.H.,
Communications Specialist, Birth Defects
Epidemiology and Surveillance Branch.

Contributors: Morgan Tarpey, Mary Ethen,
Mark Canfield, Erin Thompson.

Please visit the BDES website for updated
information and to sign up for GovDelivery
updates: www.dshs.texas.gov/birthdefects/.

Requests for copies or back issues may be
made to: birthdefects@dshs.texas.gov.

- January: National Birth Defects Prevention Month
- January 7-13: National Folic Acid Awareness Week
- January 29-February 3: 38th Society for Maternal-Fetal Medicine Annual Meeting, Dallas, TX
- February: American Heart Month
- February 10-13: Association of Maternal and Child Health Programs (AMCHP) Annual Conference, Arlington, VA
- February 14: Congenital Heart Defect Awareness Day
- Spring 2017: March of Dimes March for Babies (check with MOD for specific dates and locations)
- March: National Nutrition Month
- April: Alcohol Awareness Month
- April: National Autism Awareness Month
- April: National Minority Health Month
- April 2-8: National Public Health Week, American Public Health
- July 15-18: National Family Planning & Reproductive Health 2018 National Conference
- June 18-19: 31st Annual Meeting of the Society for Pediatric and Perinatal Epidemiologic Research, Baltimore, MD
- June 23-27: 58th Annual Meeting of the Teratology Society, Clearwater, FL
- July: National Cleft and Craniofacial Awareness & Prevention Month
- September: Childhood Cancer Awareness Month
- September: National Infant Mortality Awareness Month
- October: National Spina Bifida Awareness Month
- October: National Down Syndrome Awareness Month
- November: Prematurity Awareness Month (March of Dimes)